REMARKS/ARGUMENTS

In the Office Action mailed on July 14, 2004, the Examiner rejected claims of this application under 35 U.S.C. §112, first paragraph, as failing to comply with the description, and under 35 U.S.C. §112, second paragraph, as indefinite. Claims 1-4, 7-9, 11-14, 16-18 and 20 were rejected as anticipated by Smithyman et al. (USPN 6,047,497). Claims 5, 6, 10, 15 and 19 were rejected under 35 U.S.C. §103(a) as unpatentable over Smithyman et al. in view of Blatchford (Australian Patent Application No. 32801/95).

Applicants have now amended Claims 1, 2 and 13 and cancelled Claims 21-23. In making these revisions, care has been taken to ensure that the claims remain supported by the specification and that no new matter has been added.

Applicants appreciate the time and consideration provided by the Examiner in reviewing this application, however, respectfully traverse the rejection of Claims 1-23 at least for the following reasons.

Rejections under 35 U.S.C. §112

The Examiner has objected to a number of terms for not having basis in the specification, or as indefinite.

Claim 1

The term "*fumigation interval*" is clearly disclosed in the specification as filed and published on page 9 at line 9.

The phrase "*sealing means*" has been deleted from this claim.

The phrase "*conventional shipping container*" has been further clarified as "*ISO general purpose shipping container*". As has already been submitted in our previous Official Amendment to the first Office Action, a skilled person in this filed would immediately understand what this phrase means, and this terminology is clearly described at the website www.export911.com/e911/ship/practice.htm which discusses the ISO (or International Organisation for Standardization) system for classifying cargo shipping containers for transportation. As can be seen from that discussion and drawings, the type of container which the Applicant is referring to is well known as a "General Purpose Container". Furthermore, there is a link to another page entitled "Container Dimensions and Capacity" which shows that these general purpose containers are made in two main lengths (20 foot and 40 foot) external length. The Applicant of the instant application has made clear reference to these typical dimensions in the published specification on page 9, lines 25-35.

For clarity and consistency, the Applicant has now referred to "*an ISO general purpose shipping container*" in each of currently amended claims 1, 2 and 13.

Claim 2

As stated, the phrase "*conventional shipping container*" has been further clarified as "ISO general purpose shipping container". The term "additional" has also been deleted.

Claim 13

The phrase, "*sealing said fumigant*" has been deleted.

The phrase "*for an interval of time*" has been deleted and replaced with the phrase "*for a fumigation interval*". The term "*fumigation interval*" is clearly disclosed in the specification as filed and published on page 9 at line 9.

Resections under 35 U.S.C. §102

Anticipation under 35 U.S.C. 102 requires that each an every claimed feature be disclosed by a single prior art reference.

The apparatus of the instant invention shown in Figure 1 in the specification comprises an ISO general purpose shipping container 10, in one embodiment having a partition wall 14 dividing the container 10 into a control room 12 and a fumigation chamber 16. The apparatus of the instant invention includes a fumigant inlet means operatively coupled to the shipping container ("Piping means 24 exist for the supply and distribution of heated fumigant, or in this example, toxic gases directly into the fumigation chamber 16" page 6, lines 25-27). There is also an extraction means operatively coupled to the container and arranged to remove a majority of the fumigant from the fumigation chamber after the fumigation interval is concluded ("When the fumigation interval is complete, the recirculation fans 28 and 30 are switched off, the flow of toxic gas into the chamber 16 is stopped, and gas is evacuated from the fumigation chamber 16, flowing consecutively through orifice 38, pipe 36, actuated butterfly valve 40 and contra-rotating fan 42 before exiting the apparatus via pipe exhaust stack 44," page 9, lines 9-15). Importantly, there is a separate fumigant extraction means that is not connected to the fumigant inlet means, which allows such a sequential operation of fumigation first, followed by stopping the flow of inlet fumigant and a subsequent extraction of fumigant, as described on page 9, lines 9-15.

To the contrary, the system of Smithyman shown in Figure 1 of US6,047,497 involves maintaining a gaseous mixture in constant recycle through the fumigation regions 44a-44c (Col. 4, lines 14-20). The gaseous mixture is usually phosphine gas mixed with one or more non-flammable inert gases, such as carbon dioxide and/or nitrogen (Col. 4, lines 36-38). The mixture of gases in the system of the citation is arranged so that the phosphine gas is not present in high concentrations, which can be highly flammable (Col. 1, lines 39-57). The stated problem of prior art phosphine fumigation processes which required solving by Smithyman was that there was "a need for systems capable of managing the *flow*, of such gaseous mixtures during fumigation" (Col. 2, lines 50-51), as

well as limiting flammability, etc. as stated in Col. 2, lines 55-64.

The method of fumigation, which is outlined by Smithyman involves "removing a portion of the atmosphere from the regions (44a-44c), and returning the portion back to the region so as to create recycle flow of the atmosphere through the region, flowing a gaseous mixture from a source of the gaseous mixture to the region, the gaseous mixture including phosphine and being non-flammable in air, sensing concentration of phosphine for the atmosphere in the region, and controlling flow of the gaseous mixture to the region based on the sensed concentration of phosphine to form a pesticidal concentration of phosphine in the region" (Col. 3, lines 31-40).

The fumigation system of Smithyman also includes "a recycling passage for removing a portion of the atmosphere from the region and returning the portion back to the region so. as to create recycle flow of the atmosphere through the region" (Col. 3, lines 50-53). The apparatus of Smithyman is clearly a 'closed-circuit' in which fumigant passes from the source 10 into the fumigation region 44 via valve 59, recycle flow line 56, recycling passage 42, valve 62 and branch inlet passage 50. The fumigant can also pass from the source 10 into the fumigation region 44 via supply line 40, region feed line 58, valve 60 and branch inlet passage 50. Once in the fumigation region 44, the gas passes directly into the exhaust passage 48 and via valve 72 back to the blower 54 and the recycling passage 42 back into the branch inlet passage 50. The recycle of flow in this manner is said to be very beneficial because it conserves the gaseous mixture and reduces the amount of phosphine that could be released into the environment (page 6, lines 53-56).

The continuous passage of fumigant through the fumigation chamber in the system of *Smithyman* is also described at Col. 9, lines 58-62 and Col. 10, lines 15-23. Without the recycle of phosphine fumigant gas mixtures, the system of Smithyman simply would not be able to. operate as a fumigation system, nor would it be able to achieve the promised safety benefits over the admitted prior art equipment and processes (Col. 11, lines 36-51).

In summary, in the apparatus of Smithyman the fumigant inlet and extraction means which are operatively coupled to a fumigation chamber are <u>not</u> separate. To the contrary, they are connected to one another - the inlet and extraction means are all part of the same circuit, and do not operate independently of one another, otherwise fumigation would not be happening.

Applicant submits, by contrast, that the instant claimed invention has no such restriction. In the present application, the independent Claim 1 has now been clarified in order to better distinguish the invention from the cited prior art. Claim 1 now defines:

"A fumigation apparatus including:

- an ISO general purpose shipping container which at least in part defines a fumigation chamber being adapted to contain produce to be fumigated, and

- mobile fumigation means operatively coupled to the shipping container, the mobile fumigation means including:

- *fumigant inlet means operatively coupled to the shipping container to allow a flow of a fumigant into the fumigation chamber during a fumigation interval;*

- *a separate fumigant extraction means that is not connected to the fumigant inlet means, the extraction means operatively coupled to the container and arranged to remove a majority of the fumigant from the fumigation chamber after the fumigation interval is concluded; and*

- *absorption means operatively coupled to the extraction means for absorbing the fumigant extracted from the fumigation chamber.*"

Thus, as it is now claimed, and as described in relation to embodiments of the present invention in the specification, there is a fumigant inlet means operatively coupled to the shipping container and an extraction means operatively coupled to the container where the fumigant extraction means is not connected to the fumigant inlet means. This is in contrast to the system of Smithyman which only teaches a process which fumigates when the fumigant inlet means and fumigant extraction means are both operatively coupled to the chamber and are connected to one another at the same time to enable a continuous recycle circuit of the fumigant through the fumigation regions 44a-44c.

A similar argument is made to support independent Claim 13 as it is now defined. In the instant claimed invention, the independent Claim 13 has now been clarified in order to better distinguish the invention from the cited prior art. Claim 13 now defines:

"*A method of fumigating produce, the method comprising the steps of:*

- *providing a fumigation apparatus including an ISO general purpose shipping container which at least in part defines a fumigation chamber and a mobile fumigation means operatively coupled to the container;*

- *locating the produce to be fumigated in the fumigation chamber;*

- *providing a flow of a fumigant to the fumigation chamber for a fumigation interval so that fumigation of the produce can occur, and not extracting fumigant from the chamber during the fumigation interval;*

- *after the fumigation interval, stopping the flow of fumigant to the chamber;*

- *extracting at least some of the fumigant from the chamber; and*

- *absorbing the fumigant extracted from the fumigation chamber.*"

Importantly, the method of the instant invention includes the steps of providing a flow of a fumigant to the fumigation chamber for a fumigation interval and not extracting fumigant from the chamber during the fumigation interval, and then after the fumigation interval, stopping the flow of fumigant to the chamber and extracting the fumigant from the chamber. One embodiment of this method is clearly described on page 9, lines 1.24 of the specification as filed and published, in particular the passage at page 9, lines 9-15: "When the fumigation interval is complete, the

recirculation fans 28 and 30 are switched off, the flow of toxic gas into the chamber 16 is stopped, and gas is evacuated from the fumigation chamber 16, flowing consecutively through orifice 38, pipe 36, actuated butterfly valve 40 and contra-rotating fan 42 before exiting the apparatus via pipe exhaust stack 44". The claimed method allows a sequential operation of fumigation first, followed by stopping the flow of inlet fumigant and a subsequent extraction of fumigant.

By having a sealed "batch type" system into which known amounts of fumigant can be added, even, to very high levels, the method of the present invention can achieve a highly effective fumigation result compared with the system of the cited prior art in which the level of fumigant is constantly monitored and managed largely to prevent ignition of a fire (Smithyman, Col. 9, lines 58-65). Whereas the system of the present invention can achieve the desired fumigation condition quite quickly (page 5, lines 16-18), this is not the case in the cited prior art (Smithyman, Col. 10, lines 7-14): "Initially the gaseous mixture is diluted when it combines with the atmosphere present in the regions 44a-44c, and the recycling passage 42 before initiation of gas fumigation. Over time, more gaseous mixture flows into the recycling passage 42 and the regions 44a-44c, and eventually the concentration of phosphine in the regions 44a-44c increases to a pesticidal level".

The method of Smithyman does not teach or suggest sealing the fumigant in the chamber during the fumigation interval, and not extracting the fumigant until after the fumigation interval. Instead, in Smithyman there is a continuous recycle of the fumigant through the fumigation regions 44a-44c. The system of *Smithyman* must operate with continuous recycling of gas so that it can achieve the promised safety benefits, whereas the instant claimed invention has no such restriction. On this basis, the Applicant submits that the invention as now claimed in Claim 13 is novel and inventive in view of Smithyman.

Rejections under 35 U.S.C. §103(a)

According to MPEP 706.02(j): "To establish a prima facie case of obviousness...the prior art reference (or references when combined.) must teach or suggest all claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure."

Claims 5, 6, 10, 15 and 19 were rejected as being unpatentable over Smithyman (USPN 6,047,497) in view of Blatchford (AU32801/95). On the basis of the above amended claims, Applicant respectfully traverses this objection.

The inventions of Blatchford (AU32801/95) and of Smithyman both involve the generation of a fumigant gas mixture, but both operate in an entirely different manner to the present invention, as it is now defined. These systems involve maintaining a gaseous mixture in constant recycle, closed circuit through the fumigation regions, which are not actually shown in the drawings in AU32801/95, only described. The gaseous mixture is usually phosphine gas mixed with one or

more non-flammable inert gases, such as carbon dioxide and/or nitrogen. The mixture of gases in the system of these citations is arranged so that the phosphine gas is not present in high concentrations, which can be highly flammable. The stated problem of prior art phosphine fumigation processes which required solving by Smithyman and Blatchford is the same, essentially to limiting the flammability of gases. In Blatchford, no unequal or inordinate rates of fumigant gas generation are said to be experienced in the circulatory loop gas flow system (page 14, lines 8-10). The chamber10 in Blatchford is a fumigant generation apparatus for connection to a fumigation region, and is designed internally to avoid any localized high concentrations of fumigant gas being generated.

The cited prior art teaches away from the idea of having separate and unconnected fumigant inlet and extraction means in order that fumigant not be extracted from the fumigation chamber during the fumigation interval. There is no teaching toward a method where, after the fumigation interval is concluded, the flow of fumigant is stopped and the extraction means initiated to remove the fumigant from the fumigation chamber. We assert that the skilled person in the art of developing fumigation apparatus would need some inventive faculty to go beyond the known prior art apparatus and method to develop a new apparatus and method with the feature of a separate and unconnected fumigant inlet and extraction means to enable fumigation of goods, possibly at very high or unrestricted concentration levels of fumigant, in a fast and highly effective manner. The claimed apparatus and method of invention does not need to operate with continuous recycling of fumigant in order to achieve effective fumigation.

Therefore, it is respectfully submitted that the Claims 5, 6, 10, 15 and 19 comply with 35 U.S.C. §103, and are allowable in view of the cited prior art.

In view of the above, it is respectfully submitted that the application, is now in condition for allowance which is earnestly solicited.

Duty of Candor Disclosures

We have no further search results to report at this time in addition to the material previously formalized in an IDS.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the

Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

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